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Biofuel Mandates in the EU by Member State - 2016

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Report Highlights:
This report provides an overview on the biofuel use mandates in the various EU-28 member states. It supplements the EU-28 Biofuel Annual Report.

General Information:

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Introduction:

The 2009 EU Energy and Climate Change Package (CCP) includes a 10 percent minimum target for renewable energy consumed by the transport sector to be achieved by all EU member states (MS) in their countries in 2020. Many MS have adopted minimum biofuel use mandates in order to achieve this goal. This report provides an overview about the current and future mandates of the various MS. The tables represent the status quo of law on April 29, 2016. If changes are being discussed but not yet adopted these are mentioned in the text below the tables.

In addition, the Renewable Energy Directive (RED) stipulates that biofuels can only be counted against EU and/or member state targets if they fulfill the following minimum greenhouse gas reduction requirements:

	Minimum % GHG savings of each biofuel compared to the respective fossil fuel
2009-2016	35%
2017	50 %
2018 and onwards	50 % for biofuels produced in installations that started production prior to Jan 1, 2017. 60% for biofuels produced in installations that started production after Jan 1, 2017.

Source: RED Article 17 (2)

Abbreviations and definitions used in this report

% Cal = percent energy content
% Vol = percent volume
% Biodiesel = minimum percentage of biodiesel in total diesel use
% Bioethanol = minimum percentage of bioethanol in total gasoline use
% Overall = minimum percentage of biofuels in total fuel use
All of the above refer to fuel use in the transport sector

Biodiesel = Fatty acid methyl ester produced from agricultural or waste feedstock (vegetable oils, animal fat, recycled cooking oils) used as transport fuel to substitute for petroleum diesel
Bioethanol = Ethanol produced from agricultural feedstock used as transport fuel
Double counting = certain biofuels are counted twice against the mandates. Definition and eligible feedstocks vary by MS.
EC = European Commission
ETBE = Ethyl tert-butyl ether, an oxygenate gasoline additive containing 47% vol ethanol
EU = European Union
FQD = Fuel Quality Directive 2009/30/EC
GHG = greenhouse gas
GJ = Gigajoule = 1,000,000,000 Joule or 1 million KJ
HVO = Hydrotreated Vegetable Oil
Ktoe = 1000 MT of oil equivalent = 41,868 GJ = 11.63 GWh
MJ = Megajoule
MS = Member State(s) of the EU
Mtoe = Million tons of oil equivalent
MWh = Mega Watt hours = 1,000 Kilo Watt hours (KWh)
RED = EU Renewable Energy Directive 2009/28/EC
TME = Biodiesel based on animal fats
Toe = Tons of oil equivalent = 41,868 MJ = 11.63 MWh
TWh = Tera Watt hours = 1 billion Kilo Watt hours (KWh)
UCO = Used cooking oil/ recycled vegetable oil
UCOME = UCO based methyl ester biodiesel
UK = United Kingdom

Other Regulations and Requirements:

Austria

	Overall Percentage (energy content, % cal)	**Biodiesel** (% cal)	**Bioethanol** (% cal)	**Double counting**
Since 2012	5.75	6.3	3.4	yes
2020	8.75			

Source: Fuels Order 2012

Double counting: Waste materials and residual products from agricultural and forestry production including fisheries and aquaculture, residues from processing, cellulosic non-food materials or lingo-cellulosic materials.

Belgium

	Overall Percentage	**Biodiesel** (% vol)	**Bioethanol** (% vol)	**Double counting**
		6.0	4.0	Possible upon approval

Source: Law of July 7, 2013

Bulgaria

Biodiesel (% vol)		**Bioethanol** (% vol)		**Double counting**
Since June 1, 2012	6			No
		September, 1, 2014	6	
		March 1, 2015	**7**	
		January 1, 2018	8	
		January 1, 2019	9	
		January 1, 2020	10	

Croatia

	Overall Percentage (% cal)	**Biodiesel**	**Bioethanol**	**Double counting**
2014	3.18	2.83	0.35	Second generation and waste based biofuels

2015	3.88	3.04	0.84	
2016	**4.89**	**3.94**	**0.90**	
2017	5.89	4.83	0.94	
2018	6.92	5.75	0.97	
2019	7.85	6.61	0.98	
2020	8.81	7.49	1.00	

Source: Act on Biofuels for Transport (Official Gazette 65/09, 145/10, 26/11 and 144/12) http://narodne-novine.nn.hr/clanci/sluzbeni/2010_04_42_1066.html http://narodne-novine.nn.hr/clanci/sluzbeni/2010_11_125_3243.html)

Czech Republic

	Share of biofuels and renewable electricity in transportation on total consumption (% cal)	**Obligation to reduce total GHG emissions by** (%)	**Biodiesel** (% vol)	**Bioethanol** (% vol)	**Double counting**
2014 - 2016	**5.71**	**2**	**6**	**4.1**	**No**
2017 - 2019	8.00	4			
2020	10.00	6			

Source: Act on Air Protection 201/2012 and Government Directive 351/2012

Denmark

	Overall Percentage (% cal)	**Biodiesel** (% cal)	**Bioethanol** (% cal)	**Double counting**
Since 2010	5.75			

Since January 2010, fuel companies are obliged to ensure that biofuels make up at least 5.75 % of total annual sales of fuel. The companies are obliged to report meeting the 5.75 % obligation to the Danish Energy Agency (DEA) annually. The DEA encourages them to use the voluntary certification schemes.

The Danish Biofuel Act is to be amended in order to enable mixes with 10 % biofuels by 2020, subject to an analysis of alternative methods of meeting the renewable energy target for transport.

Finland

	Overall	**Biodiesel**	**Bioethanol**	**Double counting**

	Percentage (% cal)			
2014	6.0			
2015	8.0			
2016	**10**			
2017	12			
2018	15			
2019	18			
2020 and onwards	20			

Source: Stratas

France

	Bioethanol (% cal)	**Biodiesel** (% cal)	**Double counting**
2010 to 2013	7	7	
Since 2014	7 of which up to 0.25 % double-counted bioethanol	7.7 of which up to 0.35 % double-counted biodiesel	cellulosic biofuels and waste biofuels up to the maximum values stated on the left

Since 2014 and in order to favor "second generation (2G)" biofuels (cellulosic biofuels and waste biofuels), 2G biofuels are doubled-counted. The quantity of 2G biofuels that can be double-counted is limited in order to favor biofuels produced in France (if the quantity of double-counted biofuels was not limited, this measure could lead to an increase in imports of 2G biofuels at the expense of domestic 1G biofuels).

Germany

	% Cal	**% GHG savings (BImSchG)1**	**Double counting**
2009-2014	6.25 overall 4.4 biodiesel 2.8 bioethanol		2011-2014 HVO, UCOME only; TME excluded
2015-2016		**3.5**	**No**
2017-2019		4.0	
2020		6.0	

Source: $ 37a Federal Act on Protection against Air Pollution (Bundes-Immissionsschutzgesetz) http://www.gesetze-im-internet.de/bimschg/__37a.html

1) Percentage of GHG savings of total fuel use (fossil and renewable) compared to the hypothetic GHG

emissions had all the fuel been of fossil origin.

Double counting expired at the end of 2014 with the transition to a GHG reduction mandate. Since then, hydrotreated vegetable oil (HVO) and used cooking oil based biodiesel (UCOME) enjoy competitive advantages only based on their higher GHG reduction compared to first generation biofuels.

Greece

	Overall Percentage (% cal)	**Biodiesel**	**Bioethanol**	**Double counting**
2014-2019	**5.75**			**No**
2020	10			

In 2012, decision 4062 (FEK 70/A/30.3.2012) harmonized the Greek legislation with Directive 2009/28/EC. As a result the increased mandate of 10 percent in 2020 can be met either by domestic production or imports (the lower mandate was only allowed to be filled with domestic production).

The estimated domestic supply of biomass from agriculture for 2015 and 2020 mainly refers to oil crops – sunflower, rapeseed, and soy bean oil. To meet the 5.75% biofuels target around 148,000 MT of biodiesel have to be produced according to the Greek Ministry of Environment, Energy and Climate Change (MEECC). These quantities require around 16,000 hectares, assuming that 9.2 tons of biodiesel are produced per hectare on average. In order to meet the energy targets for biofuels for transport - for 2015 and 2020 –a substantial reform of agricultural practices and possibly some imports will be needed.

Hungary

According to Hungary's National Renewable Energy Action Plan and EU requirements (RED), 10 % of the transport fuel has to come from renewable sources such as biofuels by 2020. This obligation has come into force by the CXVII/2010 Act on promoting the use of renewable energy and the reduction of greenhouse gas emission of energy used in transport. By 2020, 56.8% (304ktoe) of renewable energy sources used in transport has to be bioethanol and 37.8% (202 ktoe) has to be biodiesel in Hungary.

	Overall Percentage (% cal)	**Biodiesel** (% cal)	**Bioethanol** (% cal)	**Double counting**
2014-18		**4.9**	**4.9**	Waste materials and residual products from agricultural and forestry production, including biofuels from non-food cellulosic and ligno-cellulosic materials
2020		202 Ktoe	304 Ktoe	

Sources:

2014-15: Government Decree No. 343/2010 on requirements and certification of sustainable biofuel production
2020: Hungary's National Renewable Energy Action Plan
Double counting: §2 (4) of CXVII/2010 Act on promoting the use of renewable energy and the reduction of greenhouse gas emission of energy used in transport

However, there is a parliamentary debate on a new draft legislation which would increase the mandatory fuel blending ratio progressively to 6.5% of energy content by 2018. The proposed amendments are summarized below.

	Overall Percentage (% cal)	**Biodiesel** (% cal)	**Bioethanol** (% cal)	**Double counting**
2014-15		4.9	4.9	Waste materials and residual products from agricultural and forestry production, including biofuels from non-food cellulosic and ligno-cellulosic materials
2016*		**5.3***	**5.3***	
2017*		5.9*	5.9*	
2018*		6.5*	6.5*	
2020		202 Ktoe	304 Ktoe	

* Proposed but not yet approved increased mandates

Ireland

	Overall Percentage (% volume)	**Double counting**
2010 - 2012	4.166	No
Since 2013	**6.383**	**Yes, UCO and Cat 1 Tallow**

Italy

Year	**Overall biofuels** (% percentage by energy content)	Of which **advanced biofuels** (% by energy content, double counted)	Advanced biofuels (% by energy content) necessary for fulfilling the targets	**Double counting**
2015	5	-	-	
2016	**5.5**	-	-	
2017	6.5	-	-	
2018	7.5	1.2	0.6	
2019	9	1.2	0.6	
2020 -	10	1.6	0.8	

2021				
2022	10	2	1	

The Netherlands

	Overall Percentage (% cal)	**Biodiesel** (% cal)	**Bioethanol** (% cal)	**Double counting**
2014	5.5			Yes
2015	6.25			Yes
2016	**7.0**			**Yes**
2017	7.75			Yes
2018	8.5			Yes
2019	9.25			Yes
2020	10.0			Yes

Dutch Emission Authority

The physical volume of biofuels blended is lower than the mandate as a large percentage of the volume blended is double counting biodiesel. Of the total biofuel use in 2014, 60 percent was double counting FAME, and 8 percent single counting FAME. The feedstock share for the consumed biodiesel was as follows: animal fat (32 percent), UCO (49 percent), and glycerin (7 percent). Note: feedstock share for biodiesel produced in the Netherlands is not known and may be different.

Poland

	Overall Percentage (% cal)	**Biodiesel** (% cal)	**Bioethanol** (% cal)	**Double counting**
2014 - 2016	**7.1**			**yes**
2017	7.8			yes
2018	8.5			yes
2020	10.0			yes

FAS Warsaw

Portugal

	Overall Percentage (% cal)	**Biodiesel** (% cal)	**Bioethanol/ ETBE** (% cal)	**Double counting**
2014	5.5	-	-	Yes
2015-2016	**7.5**	**-**	**2.5**	

2017-2018	9	-	2.5	
2019-2020	10	-	2.5	

Sources:
Consumption targets: Decree-Law 117/2010
Double counting: Decree-Law 117/2010 and Annex III in Implementing Order 8/2012

In addition, domestically produced non-food raw materials receive 1.3 TdB (biofuels entitlements) per Toe produced. Each Toe of biofuel produced from domestically grown agricultural raw materials is granted with 1.1 TdB. However, this additional value for domestic raw materials is just valid at the domestic Portuguese level and cannot be reported to the EC as part of the mandate compliance. Additional information can be found at SP1519.

Romania

	Overall Percentage (% cal)	**Biodiesel** (% cal)	**Bioethanol** (% cal)	**Double counting**
2014 - 2015		5.0	4.5	
2016		**6.5**	**4.5**	

Slovak Republic

	Overall Percentage (% cal)	**Biodiesel** (% cal)	**Bioethanol** (% cal)	**ETBE**		**Double Counting**
				Total ETBE	Thereof bioethanol component	
2015	5.5	6.8	4.5	3%	1.41%	No
2016	**5.5**	**6.9**	**4.6**			
2017	5.8	6.9	4.7			
2018	7.2	9.7	5.9			
2019	7.5	10.1	6.2			
2020	8.5	11.5	7.0			

Source : Act no. 309/2009 on Support of Renewable Energy Resources

Slovak legislation covering the mandates was updated in 2015: the minimum blending percentage for biodiesel was lowered to 6.9 percent, for 2016 and 2017, as a result of the revised EU FQD that sets 7 percent as maximum FAME content for diesel fuels to be placed on the market without labelling.

Slovenia

	Overall Percentage	**Biodiesel** (% cal)	**Bioethanol** (% cal)	**Double counting**

	(% cal)			
Since 2010	5			yes
2011	5.5			yes
2012	6			yes
2013	6.5			yes
2014	7			yes
2015	**7.5**			**yes**

Source: Stratas

Spain

	Overall Percentage (% cal)	**Biodiesel** (% cal)	**Bioethanol** (% cal)	**Double counting**
2013-2015	4.1	4.1	3.9	N/A
2016	**4.3**	**-**	**-**	**N/A**
2017	5	-	-	N/A
2018	6	-	-	N/A
2019	7	-	-	N/A
2020	8.5	-	-	N/A

Consumption mandates followed a steady upward trend until 2013, when, the downward revision of mandates introduced by Royal Decree-Law 4/2013 reduced Spain's biofuels market size. Until 2016, the overall mandate could be fulfilled by either biofuel.

On April 16th, 2014, the Government of Spain published the list of raw material eligible for double counting against biofuels consumption mandates in the Official Gazette. This list includes Used Oils of animal or vegetal origin, animal fats (Categories 1 and 2 of Regulation (EC) 1069/2009). However, double counting will only enter into force after more detailed guidelines are issued, presumably not earlier than 2016, once sustainability is fully in place.

Royal Decree 1085/2015 removed specific targets and only tepidly increased the consumption targets for the 2016-2020 period. Interestingly, only the consumption target proposed for 2019 will be higher than the original mandate established back in 2012, prior to the downward revision of targets carried out in 2013.

The enforcement of the double counting provision would contribute to further reducing the market for biofuels made from conventional feedstock. This potential market reduction will mainly affect the biodiesel sector, as no bioethanol raw material has been granted double counting.

Sweden

In Sweden, biofuels policy is based on tax exemptions. Based on this policy, Sweden succeeded in realizing the 10 percent blending of biofuels in the transport sector. However, in 2016, the government has decided to impose a tax on E-85 which until then had been set at zero. It is expected that this will favor gasoline use at the expense of E-85.

United Kingdom

	Overall Percentage (% vol)	**Double Counting**
2008-2009	2.50	
2009-2010	3.25	
2010-2011	3.50	
2011-2012	4.00	**Approved waste and residue feedstocks**
2012-2013	4.50	
Since 2013	**4.75**	